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Nancy:

Please find attached Progress Energy Carolinas, Inc.'s response to the PURC's October 17, 2008 request for comments. Progress Energy appreciates the opportunity to provide these written comments and would like the opportunity to present oral testimony at the Review Committee hearing. Please let Jeanelle McCain or me know if you have questions.

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**Progress Energy Carolinas, Inc. Comments  
On The State Regulation of Public Utilities Review Committee Questions  
Regarding Energy Issues and Energy Policies**

**Question 1**

**What action do you anticipate from the U.S. Congress as to climate change legislation? What impact may this have on South Carolina?**

**Response:**

We believe that federal action addressing climate change and greenhouse gases – by either legislative action in the U.S. Congress or regulatory action by the U.S. EPA and/or other federal agencies – is likely. The time frame for action, however, is uncertain. Various design features of legislation/regulation, including the interrelationship of design elements, can significantly influence the impact, and the impact can be determined only within a specific legislative or regulatory context or structure. The absence of any enacted legislation or final regulatory action makes it impossible to assess what the impact may be on South Carolina.

In addressing the complex issue of global climate change, we must balance economic and environmental issues with our obligation to provide affordable, reliable electric service. We plan to employ a balanced strategy that boosts conservation and efficiency programs, increases the use of renewable and alternative sources of energy, advances the development and deployment of new energy technologies, and utilizes advanced nuclear and clean-coal technologies. We believe that this balanced strategy is the best way to address customer growth, electricity demand and global climate change.

**Question 2**

**Does South Carolina have governmental resources available to study, plan, or act upon current or future energy policies? Are these resources sufficient? Are these resources appropriately empowered to act? Is there any overlapping of roles?**

**Response:**

Yes, South Carolina has adequate governmental resources to oversee energy policy, planning and development of resources to meet future need, at least for an adequate and reliable supply of electricity at lowest reasonable cost. The Public Service Commission and the Office of Regulatory Staff, with guidance from the General Assembly, provide appropriate direction and oversight of regulated utilities.

### **Question 3**

**How do we use electricity in South Carolina? How is our use different from other states, with respect to amount of use and type of use? What factors drive this usage? What can we do to better use our energy resources? What demographic or other factors prohibit or inhibit our ability to be more energy efficient?**

#### **Response:**

Per capita electricity consumption in South Carolina is among the highest in the United States. The State's high per capita electricity consumption is due to high industrial use, high demand for electric air-conditioning during hot summer months, and the widespread use of electricity for home heating during typically mild winter months. Nearly three-fifths of South Carolina households use electricity as their primary energy source for home heating.

*(Source: U.S. Dept. of Energy, Energy Information Agency, State Energy Profile: South Carolina  
[http://tonto.eia.doe.gov/state/state\\_energy\\_profiles.cfm?sid=SC](http://tonto.eia.doe.gov/state/state_energy_profiles.cfm?sid=SC))*

However, the average rate (¢/kWh) paid by South Carolinians is almost 22% below the average rate paid by consumers nationwide. According to EIA, the average rate in the United States in 2006 was 8.9 ¢/kWh but South Carolinians paid only 6.98 ¢/kWh.

*(Source: <http://www.eia.doe.gov/cneaf/electricity/epa/fig7p4.html>)*

Factors contributing to South Carolina's relatively high consumption of electricity include its hot and humid summer climate, which drives the need for air conditioning; mild winters, which make electric heat pumps an economic heating option; and, low electric rates which make electricity an economic source of power.

In order to foster the development of energy efficiency programs, the State should encourage the adoption of mechanisms to provide timely and full recovery of costs for regulated utilities, including economic incentives.

However, one factor that must be considered is the ability of South Carolinians to pay the additional costs of renewable energy and to afford the capital expenditures necessary to install energy efficient equipment in their homes and businesses, especially in the current hard economic times. A significant portion (a little over 40%) of South Carolina households have annual incomes of \$25,000 or less, with a great majority (almost 70%) having household incomes of \$50,000 or less.

#### **Question 4**

**What types of renewable sources of energy are available in South Carolina? What is the expected cost to produce and transmit electricity from those resources?**

#### **Response:**

South Carolina has the potential for renewable resources from several sources including solar, biomass, and wind.

Estimates of renewable energy potential are contained in the following reports:

***“Analysis of Renewable Energy Potential in South Carolina”*** prepared for Central Electric Power Cooperative in September 2007. The report is available at:

[www.energy.sc.gov/publications/Renewables%20Potential%20Final%20Report%20-09-12-2007-B.ppt](http://www.energy.sc.gov/publications/Renewables%20Potential%20Final%20Report%20-09-12-2007-B.ppt)

***“Biomass Energy Potential in South Carolina: A Conspectus of Relevant Information”***  
***Prepared for the*** South Carolina Energy Office, U.S. Department of Energy/Southern States Energy Board and Southeast Biomass State and Regional Partnership. The report is available at:  
[www.energy.sc.gov/publications/Biomass%20Conspectus%208-5-08.pdf](http://www.energy.sc.gov/publications/Biomass%20Conspectus%208-5-08.pdf)

The cost to produce electricity using renewable resources depends on the variable and fixed costs and operating characteristics of the supply technology. Variable and fixed costs can range significantly across technologies based on the cost of the fuel, the efficiency of the power generator and the cost to construct the resource. However, power costs are also affected by the operating characteristics of the generator.

Generally, renewables cost more than conventional supply. (See the conclusions below based upon the September 2007 report titled ***“Analysis of Renewable Energy Potential in South Carolina”*** prepared by **La Capra Associates, Inc.**).

(Source: <http://www.ecsc.org/newsroom/RenewableResourcesSummary.pdf>)

- According to the study, South Carolina, unlike some other states particularly in the West, lacks renewable resources to meet significant percentages of our electricity needs.
- By far the largest percentage of renewables would come from biomass burning.
- Energy from a newly constructed coal-fired unit would cost about \$46 per MWh (megawatt-hour).
- Landfill gas is the state’s lowest-cost renewable energy option for electric generation. The practical potential is about 70 MW (megawatts), with levelized costs of less than \$90 per MWh.
- Biomass (wood waste, logging residue, commercial thinnings, corn and poultry litter) used in direct-fire generation can provide the next lowest-cost renewable energy option, contributing up to 490 MW, with costs ranging from \$90 to \$135 per MWh.

- With incremental costs of \$15 to \$50 per MWh (above coal generation costs), burning biomass with coal may be an option, but will be limited by compatibility issues. (Burning significant amounts of biomass material in existing coal-fired power plants would require extensive, and expensive, capital equipment upgrades.)
- Small hydro (without impoundments/dams) may provide about 100 MWa (the average number of megawatt hours, not megawatts, over a specified period of time) of energy for the state, but costs may vary widely depending on site-specific issues and capacity factors. Permitting may also be an issue.
- There are virtually no onshore wind sites that can be practically developed in South Carolina.
- There may be some opportunities for the development of offshore wind projects, but projects must overcome permitting and performance barriers. The levelized cost of wind-generated electricity ranges between \$120 to \$155 per MWh.
- In general, solar (photovoltaic) deployment is not limited by resource availability but rather by costs, which range from \$165 to \$500 or more per MWh, and technological barriers.
- In total, the renewable resources, if fully deployed, could practically meet only 3 to 5 percent of South Carolina's electrical energy requirements.

### **Question 5**

**What types of non-native renewable resources are available to South Carolina? What is the expected cost to transmit electricity from those resources?**

#### **Response:**

Renewable resources similar to those included in the response to Question 4 above are also available outside of South Carolina. The transmission cost to transport these resources into South Carolina likely makes these sources more expensive than projects located within the state. The specific cost of transportation depends highly on where the site is located and the type of resource developed at the site.

## **Question 6**

**What programs that promote energy efficiency exist in our state? Are these programs affordable to all South Carolinians? Should they be affordable to all South Carolinians? Are energy efficiency measures a cost-effective alternative to the construction and operation of generation facilities? How should energy efficiency incentives be designed?**

### **Response:**

Progress Energy Carolinas (PEC) currently provides several programs to promote energy efficiency in South Carolina. Most notably, PEC has offered a 5% discount since 1980 to residential homes that meet higher thermal efficiency standards that are significantly above existing building codes and standards. Through December 2007, over 279,000 dwellings in PEC's service territory have qualified for the discount which includes South Carolina customers. Additionally, PEC offers free home energy audits, available both on-line and mail-in, that are designed to help customers identify the best ways to save energy by analyzing their energy consumption and home characteristics, and making recommendations on energy efficiency improvements. Other current efficiency programs that are available to South Carolina PEC customers include financing programs, on-line account access, and other on-line tools/tips for helping customers save energy. PEC is also planning an aggressive expansion of its Demand Side Management and Energy Efficiency programs that is aimed at reducing peak demands and electricity consumption by encouraging changes in behavior and equipment purchase patterns by utilizing financial incentives and increased customer education. PEC intends to offer these new programs to its South Carolina customers beginning in 2009. Meanwhile, the company also provides more than 100 low-to no-cost efficiency tips on its [www.savethewatts.com](http://www.savethewatts.com) Web site.

All energy-efficiency programs should be designed to be cost-effective in order to maintain affordable electric rates while minimizing any cross subsidization for the funding of such programs. The cost-effectiveness of programs should be determined based on quantifiable costs and benefits.

Energy-efficient programs should be affordable to all South Carolinians, and furthermore, PEC believes that specific programs should also be designed to address the needs of low-income customers. Low-income customer programs are traditionally much less cost effective than programs targeting other customer segments.

Energy-efficiency incentives are critical to creating the customer awareness and acceptance required to expand the market for energy efficiency products and services, as well as drive sustainable market transformation and customer behavioral changes. In the early stages of program promotion, a fair amount of uncertainty exists as to what level of incentive will entice customers to take action and adopt energy efficiency measures. At the same time, it is important to balance the impact that customer incentives will have on the cost-effectiveness of programs. PEC contends that flexibility, including the ability to adjust incentives as needed, is key to implementing successful energy-efficiency programs in order to maximize their cost-effectiveness. PEC considers three primary criteria when designing customer incentives: avoided cost benefits, customer payback periods, and incremental participant costs.

**Question 7**

**The heavy use of concrete and steel to construct coal and nuclear generating facilities in China, India and other developing nations and the importation of fuel needed to create energy from those facilities has increased the price of these raw materials and commodities beyond most projections. Is this level of growth sustainable? Will prices continue to be driven by global demand? How will South Carolina be affected by this global demand?**

**Response:**

While the demand for materials to support infrastructure expansion in other countries may have declined during the current world-wide economic turmoil, it is expected to increase as the economies recover. Prices for these materials will most certainly continue to be greatly influenced by word-wide demand. Firms in South Carolina will be competing in this global market for these critical materials such as concrete and steel, and will have little control over prices.

**Question 8**

**How has the current economic situation affected the projections for energy use?**

**Response:**

Progress Energy Carolinas has reduced its short-term energy use projections to reflect an expectation of both lower growth in the number of new customers and slower growth in the average use of all customers.

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